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noon, November 1, last past. The pond is a large one, and almost round. The bank of it, towards the north, is faced with a brick-wall; and the bottom of it arises from thence, in a slope, towards the south. The water arose from north to south, so as to go five feet and a half beyond the water-mark. In his return it arose against the brick wall, the top of which was about one foot above the level of the water, so as to run over it. The water afterwards moved from north to south, and back again, five times before it stopped. I am,

Barley, June 15,
1756.

Dear Sir,

Very faithfully yours,

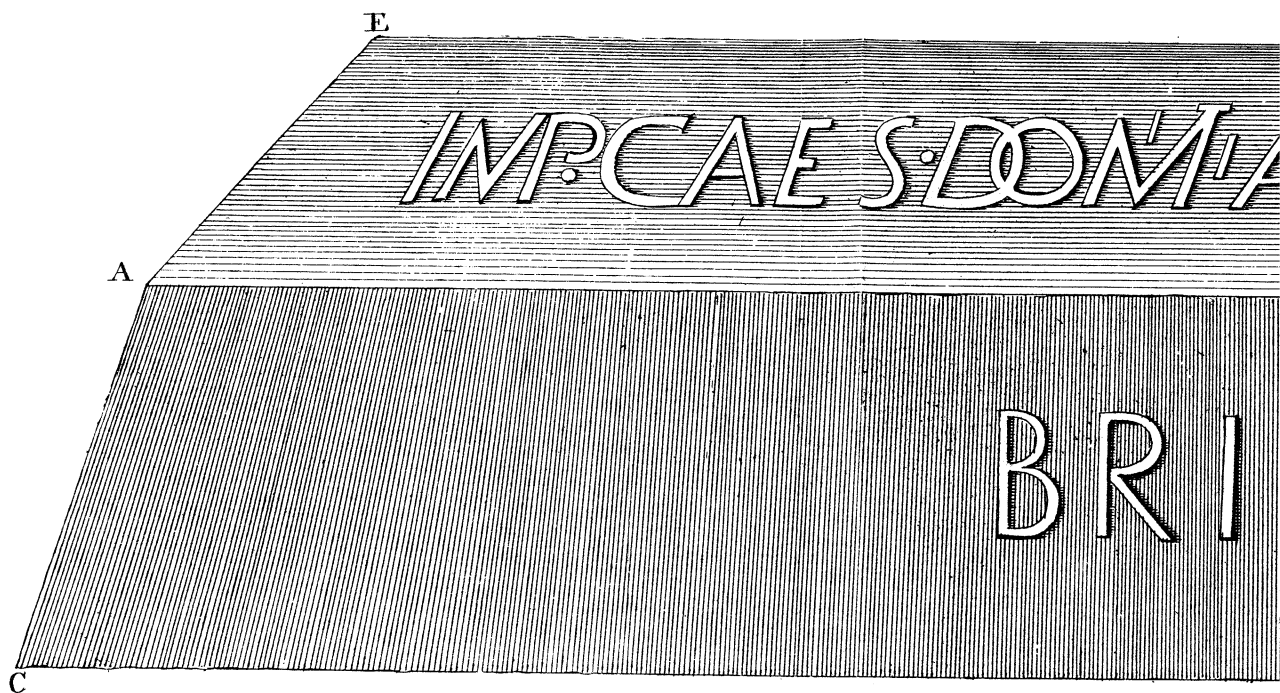
T. Rutherford.

CVIII. *Some Considerations on a draught of two large peices of Lead, with Roman Inscriptions upon them, found several years since in Yorkshire. By John Ward, LL.D. Rhet. Prof. Gresh. and V. P. R. S.*

Read July 1, 1756. **S**OME time since a draught of two large peices of lead, similar to each other, was communicated to this Society by a worthy member, Henry Stuart Stevens, Esquire (1). The account then given of them, which accom-

(1) January 31, 1754.

*A Draught of two peices of lead, si
found on Hayshaw moor in Y*

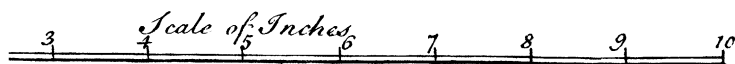


		Inch.	
<i>Length</i>	{ at the top from A to B at the bottom from C to D }	{ 21 23 $\frac{1}{2}$	
<i>Breadth</i>	{ at the top from A to E at the bottom from D to F perpendicular thickness }	{ 3 $\frac{1}{2}$ 4 $\frac{1}{4}$ 4	



*The top is somewhat ,
Weight of the lead, 1 ,*

*lead, similar to each other,
r in YORKSHIRE.*



*what hollow, and the letters are in relief.
lead, 1 hundred, 1 quarter, and 16 pounds.*

panied the draught, was as follows: "They were
 " found in February 1734, one foot and half under-
 " ground, on Hayshaw Moor, belonging to Sir
 " John Ingilby, baronet, in the manor of Dacre,
 " near Pateley bridge, in the West Riding of York-
 " shire. The weight of each peice is one hun-
 " dred, one quarter, and sixteen pounds." The
 form of them, as likewise two Roman inscriptions
 impressed on them in relief, will appear by the
 draught annexed to this paper, and reduced to half
 the size of the original (Tab. xxiv.). The larger
 inscription, which is placed on the top, may be thus
 read in words at length :

Imperatore Caesare Domitiano Augusto, Consule VII.

And the lesser, on the side :

Brigantum.

When this draught came first before the Society, I
 took the liberty of saying, that I apprehended those
 peices of lead were part of the tax, which at that time
 was paid to the Romans out of the lead mines in Bri-
 tain. The reasons for which opinion I now beg
 leave to offer more at large (2).

(2) Since this paper was written, I have found, that another
 draught of those peices of lead, with a breif account of them, had
 formerly been communicated to the Society, not long after they
 were discovered; and published in their *Transactions*, Vol. XLI.
 Num. 459. p. 560. That account differs very little from this, ei-
 ther as to the form, dimensions, and weight of the two peices of
 lead; or the time, and place, of their discovery. But no attempt
 is there offered to explain the design, for which they were made.

But before I enter upon this, it may be proper to observe, that Camden has published two Roman inscriptions, impressed likewise on peices of lead, which were found on the shore, at the mouth of the river Mersey in Cheshire, while he was revising his description of that country, And the account he gives of them is this : *Dum haec recognovi, a fide dignis accepi viginti massas plumbeas hic in ipso litore erutas fuisse, forma oblongiori sed quadrata, in quarum superiori parte in concavo haec legitur inscriptio :*

IMP. DOMIT. AVG. GER. DE
CEANG.

In aliis vero :

IMP. VESP. VII. T. IMP. V.
COSS.

He supposes them to have been erected as a monument of a victory over the *Cangi*, as appears by his following words, which are these : *Quod monumentum videatur erectum fuisse ob victoriam in Cangos* (3). And this he supposes to have been done in the reign of Domitian, while *Julius Agricola* was *propraetor* in Britain. It is plain from the words, *a fide dignis accepi*, that Camden himself had not seen those

(3) *Britann.* p. 463, edit. 1607.

peices of lead. However from his description of them, as imperfect as it is (for he neither gives us their weight, nor dimensions) it seems highly probable, that they were of the same kind, and designed for the same use, with those represented by this draught. But as Camden considered them only as a monument of a victory, I shall now proceed to offer my reasons for differing from that learned writer in this particular.

At the time these peices of lead were cast, Britain was a Roman province, and had been so from the reign of *Claudius*. For *Caesar*, as Tacitus says, was the first Roman, who invaded Britain; but did little more, than show it to his successors. After which the civil wars, and dissensions in the Roman state, diverted them from any thoughts of Britain; so that no attempts were made against it during the three following reigns (4). But *Claudius*, who succeeded next to the empire, being ambitious of a triumph, was prevailed on to undertake an expedition against Britain. For this purpose he sent hither a large body of Roman forces, and not long after coming over himself landed in Kent. The Britons were then governed by several independent princes, who not being able to withstand the Romans, some of them submitted; and *Claudius* in a short time returning again to Rome, was honoured with a splendid triumph. And the army, which he left behind him, not only maintained what they had gotten, but advancing farther into the country enlarged their conquests; so that during the reign of *Claudius*, as Tacitus informs

(5) *Vit. Agric. cap. 13.*

us, *Redacta paulatim in formam provinciae proxima pars Britanniae, addita insuper veteranorum colonia, quaedam civitates Cogiduno regi donatae* (6). Where by the Words, *proxima pars Britanniae*, must be understood the south east parts nearest the continent (7).

From this time a Roman governor was usually appointed to reside here, as in other provinces of the empire. And in the next reign, which was that of *Nero*, the Romans continued to gain fresh conquests; though the Britons, who were very uneasy in this state of servitude, made several efforts to regain their liberty, and particularly under the conduct of queen *Boadicea*. When, as the same historian relates, Britain had been lost, if the Roman governor *Paullinus*, who was employed in the reduction of the isle of Anglesey, had not speedily returned, and given the enemy a total defeat (8).

After this no fresh disturbances arose till the reign of *Vespasian*, who assumed the empire near the end of the year 69. In the year 71 the Roman army under *Cerealis* having attacked the *Brigantes*, a northern people, and very numerous, conquered a great part of their country (9). And in the year 76 the *Silures*, inhabitants of Wales, a powerful and warlike people, were in like manner subdued by *Frontinus* (10).

The next Roman legate in Britain was *Julius Agricola*, a man of equal courage and prudence; who in the year 78, being sent by *Vespasian* to go-

(6) *Ibid.* cap. 14.

(7) See *Horsley's Brit. Rom.* p. 33.

(8) *Tac. ubi supra*, cap. 16, 18.

(9) *Tac. ibid.* cap. 17.

(10) *Ibid.*

vern the province, marched first against the *Ordovices*, a people of North Wales, by whom a body of Roman soldiers, stationed near them, had lately been almost intirely cut off; in return for which, having given them a total defeat, he destroyed in a manner the whole nation (11). After this his view was to reduce the isle of Anglesey, which upon his approach surrendered to him (12). And winter then coming on, he applied himself to redress the greivances of the inhabitants, and particularly the unjust exactions made upon them by the officers of the revenue, in order to prevent any future disturbances. At the approach of summer he drew out his army, and gave the enemy no rest, by making sudden inroads upon them, and wasting their country. And when he had sufficiently terrified them, he desisted, and shewed them the allurements of peace; by which many states submitted, gave hostages, received garrisons, and permitted the building of forts. The winter following was spent in schemes to soften and polish this rude and uncultivated people, by encouraging and assisting them to build temples (13), places of public resort,

(11) *Ibid.* cap. 18. (12) *Ibid.* (13) The largest and most beautiful mosaic pavement, which has hitherto appeared in Britain, was discovered some years since in Littlecote park, near Ramsbury in Wiltshire, and now possessed by Edward Popham, esquire. It seems, by the form and size of it, to have been the area of a heathen temple, consisting of two parts, as those buildings usually did, namely, a *templum* and *sacrarium*. And from some coins of Vespasian, which were found with it, that temple might not improbably have been one of those, which were erected here, while Agricola governed in Britain. A print of this curious remain of Roman antiquity was lately engraved by Mr. George Vestue.

and fine houses ; the noblemens sons were instructed in the liberal arts, drawn into an esteem of the Roman language and habit, and by degrees the inducements to luxury, as porticos, baths, and costly banquets ; which, as the historian adds, *apud imperitos humanitas vocabatur, cum pars servitutis esset* (14). The third campaign discovered new people, when marching still northward he subdued all, who opposed him, to the borders of Scotland, where he built castles. And the next summer was employed in securing and settling the conquests, which he had hitherto made ; so that the Romans were then absolute lords of all on this side. The two succeeding years were employed in fresh conquests northwards, and the year following, or near it, *Agricola* was recalled by the emperor *Domitian*. Such was the state of affairs in Britain during the government of *Agricola*, when the Romans enjoyed the fruits of their conquests, and the Britons grew more easy under the yoke.

In the Roman provinces the next officer under the governor was the *procurator*, who had the care and charge of the revenues, and by illegal exactions often oppressed the inhabitants. This was one of the greivances complained of by the Britons, at the time of their revolt under queen *Boadicea*, when they said : *Singulos sibi olim reges fuisse, nunc binos imponi ; e quibus legatus in sanguinem, procurator in bona saeviret* (15). Now the taxes levied by the Romans on the provincials were of two kinds, called *tributa*

(14) *Tacitus, ibid. cap. 21.*

(15) *Ibid. cap. 15.*

and *veſtigalia* (16). The former conſiſted chiefly of a capitation tax, and a tax upon lands; both which, as occaſion required, had in the time of the republic been frequently levied on the citizens of Rome (17). All other duties beſides theſe came under the name of *veſtigalia*, and were principally four: a certain portion of the grain produced by arable land, which was uſually a tenth; payments made for grazing cattle in paſture grounds, or foreſts; cuſtoms upon goods imported, or exported; and the produce of mines (18). But this diſtinction, between the uſe of the words *tributum* and *veſtigal*, is not always obſerved by Roman writers. The *veſtigalia* were generally farmed out to Roman citizens of the equeſtrian order, who held them at a certain annual rent, and were called *publicani* (19). So Livy, ſpeaking of the mines in Macedonia, ſaith: *Eas ſine publicanis exerceri non poſſe* (20). And as this affair was too large and expenſive for the fortune of ſingle perſons, it was managed by different ſocieties, or corporations, who rented one or more ſpecies of a whole province, which were let together. Tacitus refers to theſe ſocieties, when he ſaith; *Fruſmenta, et pecuniae veſtigiales, cetera publicorum fructuum, ſocietatibus equitum Romanorum agitabantur* (21). And Cicero calls them *ſocietates veſtigilium* (22). They uſually reſided at Rome; but had

(16) *Cujac. Obſervat. Lib. vii. cap. 4.* (17) *Feflus in voc. Tributorum.* (18) *Burmann. De veſtigal. Lib. i. p. 3. and Lib. vi. p. 77. edit. 4to.* (19) *Lib. i. §. i. Dig. de cenſibus. L. 13. princ. ibid. de donationibus.* (20) *Lib. xlv. cap. 18.* (21) *Annal. Lib. iv. cap. 6.* (22) *Pro Sext. cap. 14.*

deputies (23), and other inferior officers, in the provinces; who transacted their affairs there, and disposed of their effects.

Pliny observes, that the lead mines in Britain were in his time very large, and easily worked, as they lay near the surface of the earth. His words are these: *Nigro plumbo ad fistulas laminasque utimur, laboriosius in Hispania eruto, totasque per Gallias; sed in Britannia summo terrae corio adeo large, ut lex ultro dicatur, ne plus certo modo fiat* (24). And then he proceeds to acquaint us with the annual rent, at which one of those mines was farmed in *Baetica*, the more southern province of farther Spain. *Mirum*, says he, *in his solis metallis, quod derelicta fertilius revivescunt. Nuper id compertum in Baetica Santarenfi* (25) *metallo, quod locari solitum x. cc. m* (26) *annuis, postquam oblitteratum erat, cclv* (27) *locatum est.* The former of these sums makes of our money six thousand four hundred fifty eight pounds, six shillings, and eight pence; and the latter, eight thousand two hundred thirty four pounds, seven shillings, and six pence; computing the value of a Roman denary at seven pence three farthings, as Dr. Arbuthnot has done in his Tables.

(23) *Zacchaeus* seems to have had this office in Judaea, as he is stiled ἀρχιτελώνης, and said to have been rich; whereas St. *Matthew* is only called τελώνης. *Luke* xix. 2. *Matth.* x. 3. *Luke* v. 27.

(24) *N. H. Lib.* xxxiv. cap. 17. (25) *Santarense* was the name of the mine here spoken of, as *Harduin* has shewn in his notes upon this place. (26) That is, *denariorum ducentis millibus.* (27) That is, *ducentis quinquaginta quinque millibus.*

What

What Pliny says of the lead mines in Britain, plainly relates to his own time, and shews they were then subject to a Roman tax. And as he lived to the year 80, or near it, that very well agrees with the dates of the several inscriptions on the peices of lead now under consideration. The earliest of these dates, which is in one of Camden's inscriptions, namely, IMP. VESP. VII. T. IMP. V. COSS. answers to the year 76, in the *Fasti Consulares*. And that in the draught, which is IMP. CAES. DOMITIANO. AVG. COS. VII. to the year 81 (28). And though the other inscription in Camden has only IMP. DOMIT. AVG. GER. without a date; yet, as the title *Germanicus* appears on some coins of *Domitian* at the be-

(28) With regard to this inscription, it may not be amiss to observe, that although Domitian held his seventh consulate in the year 80, as appears by the *Fasti*; yet, as he is here stiled *Augustus*, the inscription must refer to the year 81, in which he succeeded to the empire, upon the death of his brother Titus, and took the office of consul for the eighth time the following year. Nor are there wanting several other instances of the like nature, in which the last preceding consulate of the Roman emperors continued to be inserted in their inscriptions, among their other titles, till they resumed that office again. Thus *Occo*, p. 181, gives us an inscription of Trajan, with *Trib. potest. 18, Cos. 6*. Where the date of his tribunical power answered to that of his reign, which *Pagi* observes to have been the usual custom, *Proleg. ad Dissert. Hypat. §. 6*. But Trajan held his sixth consulate in the year 112, which was the fifteenth of his reign. So likewise in the *Append. ad Marm. Oxon. N. 162*, there is a Greek inscription of Hadrian, with $\Delta\eta\mu\alpha\rho\chi\iota\kappa\eta\varsigma \epsilon\zeta\upsilon\sigma\iota\alpha\varsigma \tau\omicron\delta \iota, \epsilon\pi\alpha\lambda\omicron\nu \tau\omicron\delta \gamma'$. that is, *Trib. pot. 10, Cos. 3*. Though Hadrian's third consulate was in the same year of his reign. And to mention no more, *Fabretti*, p. 451, has published an inscription of the same emperor, in which is, *Tribuniciae potest. 19, Cos. 3*, being but two years before his death.

gining of his reign, before he assumed it as a *cognomen* (29), it is not improbable, that this peice of lead might also have been cast within the time, when *Agricola* was governor of Britain.

The method of casting the lead, when separated from the ore, into large peices of a proper size, form, and weight, was very proper; as well to ascertain their quantity, as to render them portable, and fit for sale. And they might be marked with the name of the emperor for a like reason, as when it was put upon the coins; namely, to authorise the sale of them by vertue of his permission. The year likewise, and the name of the people, where the mines lay, were necessary to be added, for the sake of the proprietors; in order to adjust their accounts with the officers, and prevent frauds in the execution of their trust. And it is observable, that the method now made use of in our lead mines is not much different from this. For the metal, while liquid, is cast in an iron mold into large peices, which from the shape of them are usually called *pigs*; and, as I have been informed, are upon an average near the same weight, with that specified in the draught. And they are likewise commonly marked with the initial letters of the name of the smelter, or factor, and sometimes both, before they are sent from the mines.

Camden might possibly take these peices of lead for the monument of a victory, by supplying *victoria*, or *monumentum victoriae*, before the words DE CEANG. for *Ceangis*; the same people, as he sup-

(29) See *Vaillant, Numism. imp. Rom. praestant. Tom. II. ed. 3. p. 113.* And *Sueton. in vit. Domit. c. 13.*

poses, with the *Cangi*; and whom, from the authority of this inscription, he would place in that country. But this supplement will not answer, when applied to *Brigantum*, the name of the people mentioned in the inscription upon the draught. For *victricia*, or *monumentum victriciae*, *Brigantum*, would rather mean *a victory gained by the Brigantes*, than *over them*. I would therefore supply the word *veftigal* in both inscriptions, and read *veftigal de Ceangis*, and *veftigal Brigantum*; for the sense will be much the same in either construction, as the former will signify *a tax levied on the Ceangi*, and the latter *a tax paid by the Brigantes*. Horsley indeed questions the genuineness of these inscriptions in Camden; partly from his assigning this situation to the *Cangi* upon their authority, which he can by no means agree to; and partly from their giving the title *imperator* at the same time, as he apprehends, to *Vespasian*, *Titus*, and *Domitian* (30). But neither of these reasons appears sufficient to invalidate their authenticity. For as to the situation of the *Cangi*, concerning which our antiquarians differ very much in their sentiments, the finding of those peices of lead at the mouth of the river Mersey in Cheshire, is no proof of their having been made in that country. As twenty of them were found together, it seems highly probable, they were the remains of the cargo of some vessel laden with them, which had been cast away on that shore; but the place from whence they were brought must remain uncertain, till the situation of the *Cangi* has been first settled. Be-

(30) *Britann. Rom.* pag. 34, 316.

fides, the name of the people is not mentioned in one of those in Camden; which might then have been defaced, or omitted by the transcriber. And as to the other objection of Horsley, from the title of *imperator* being given to *Vespasian*, *Titus*, and *Domitian*, at the same time, in those two inscriptions; that the peices of lead, which contain them, must have been cast at some years distance from each other, has been shewn already (31).

As to Camden's description of them, as *monumentum erectum ob victoriam in Cangos*, if from their number he supposed them to have been set together in the form of a trophy; how they could well have been placed in such a situation, I do not apprehend; nor have I ever met with any instance of a similar nature. He mentions indeed another inscription upon lead, found near Ochie hole in Somersetshire, of which he gives the following account: *Non procul ab hoc, regnante Henrico VIII, aratro eruta fuit oblonga plumbi lamina in trophaeum olim erecta, et sic inscripta:*

TI. CLAVDIVS CAESAR AVG. P. M.

TRIB. P. VIIII. IMP. XVI. DE BRITAN (32).

The size of the lead is not here given; but as he calls it *lamina*, a plate, that might indeed be fixed up somewhere, as a sort of trophy, or monument. Which seems confirmed by a coin of that emperor,

(31) *Pag.* 695.

(32) *Britann. pag.* 168. *edit.* 1607. A more particular account of this may be seen in Leland's *Affertio Arturii*, p. 45. where the inscription is read somewhat differently.

with the same inscription, and a triumphal arch on the reverse, as Camden observes; who places it in the year 50, which answers to the ninth tribuneship of Claudius. And the like may be said of another such inscription upon a peice of lead, weighing about fifty pounds, and found in the same county; which is published by Horsley, and is as follows:

IMP. DVOR. AVG. ANTONINI
ET. VERI ARMENIACORVM (33).

It was then in the library of the lord viscount Weymouth at Longleat (34); though upon inquiry I do not find, that it is there now (35). But it was not unusual with the antients to cut inscriptions sometimes on tables of lead. Thus Tacitus says: *Reperiebantur solo ac parietibus erutae humanorum corporum reliquiae, carmina et devotiones, et nomen Germanici plumbeis tabulis insculptum* (36). And Dion, speaking of the same subject, calls them, ἐλασμοὶ κολλῆδιστοι (37). However, those large and thick masses of lead described by Camden, and represented by the draught, seem to have differed no less from these

(33) *Brit. Rom. Somersetsh. num. x.* (34) *Ibid. pag. 328.*

(35) The Rev. Dr. Stukeley has since obliged me with a more particular account of this plate of lead, as it was communicated to him by the Right Honourable Heneage Earl of Winchelsea. The Doctor says, it was one foot nine inches long, two inches thick, three and a half broad; weighed fifty pounds; and was found in the ground of the Lord Fitzharding, near Bruton in Somersetshire. A draught of which, with the inscription, may likewise be seen in his *Itinerar. Curios. p. 143.*

(36) *Annal. Lib. II. cap. 69.*
edit. Leunclav.

(37) *Lib. LVII. pag. 615,*

plates or tables, in the use of them, than they did in their figure. Nor can I apprehend, the former were designed for any other purpose, than that above mentioned. But as they are very remarkable, and perhaps the singular remains of that kind, relating to the Roman government, either here in Britain, or any other part of their dominions; they may deserve the further consideration of the curious, in their inquiries into these subjects.

CIX. *Two Essays addressed to the Rev. James Bradley, D. D. and Astron. Reg. by Mr. Charles Walmesley, F. R. S.*

Reverend Sir,

Read Nov. 4,
1756.

I HAVE taken the liberty to address to you two little essays, that relate to astronomy; for as no one is more master of that science, or has enriched it with greater discoveries, than yourself, you can best judge of the worth and use of any performance in that kind. The first essay is a Theory on the Precession of the Equinoxes, and the Nutation of the Earth's Axis; which, as it is indebted to you for the discovery of the cause, on which it is founded, as also for the settling of the effects, with which its result is to be compared, ought to be laid before you as a homage, that of right is due. You expressed a desire of a theory on that subject: I have therefore examined, according to the *principle of gravity*, what motions may be produced in the globe